

# Improving the Knowledge and Practice On Early Detection of Neonatal Jaundice by Nurses in Kuching District

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## ABSTRACT

<b>Introduction</b>	Neonatal jaundice occurs in about 60% of newborns. If not managed properly, it can progress to severe neonatal jaundice (SNNJ) leading to death or permanent disability. The incidence of SNNJ in Kuching District increased from 119.3 per 100,000 live births in 2005 to 123.3 per 100,000 live births in 2008, which was above the Standard National QAP Indicator of 100 per 10,000 live births. SNNJ can be prevented by early detection and proper management of neonatal jaundice. The objective is to increase the knowledge and practise of early detection of neonatal jaundice by nurses in Kuching District.
<b>Methods</b>	This was an interventional study covering a period of six months. The sample comprised 113 nurses of all categories working in urban and rural maternal and child health clinics in Kuching District. Tools used in the study were self-administered questionnaires in English and Bahasa Malaysia. The pre-intervention survey started in July 2009 while the post-intervention survey was done in January 2010. The interventions were done through Continuing Nursing Education sessions and included new nursing formats and new reporting procedures. New vehicles were also provided for home nursing. Data was collected and analyzed using MS Excel program.
<b>Results</b>	The pre-intervention survey on nurses showed that only 56.6% were able to identify the risk of factors causing jaundice; 94.6% able to define jaundice; 41.5% able to detect jaundice while 70.8% knew sign of Kernicterus. In term of recommended post natal nursing schedule only 40.7% able to practice the schedule while only 69.0% able to give advice on management of jaundice. Post intervention; 63.2% of nurses were able to identify the risk factors causing jaundice; 97.2% able to define jaundice while 97.2% were able to detect jaundice and 88.6% know sign of Kernicterus. On recommended post natal nursing schedule, 49.9 % practice the recommended schedule while 92.0% were able to give advice to mother on management of jaundice. The incident of jaundice of Severe Neonatal Jaundice dropped to 78 per 100,000 live births in 2010.
<b>Conclusions</b>	The study shows that the interventions taken helped to improve the knowledge and practice of recommended measures to detect neonatal jaundice early. Stronger emphasis must be placed on using the new reporting procedures and new nursing sheets. Continuous monitoring through regular nursing audits by clinic supervisors is also essential to reduce the incidence of SNNJ. Provision of vehicles for all busy maternal and child health clinics for home nursing care is highly recommended.

## INTRODUCTION

Neonatal jaundice occurs in about 60% of newborns. If not managed properly, it can progress to severe neonatal jaundice (SNNJ) leading to death or permanent disability. The incidence of SNNJ in Kuching District for the year 2005 until 2008 has exceeded the National Indicator. It increased from 119.3 per 100,000 live births in 2005 to 123.0 per 100,000 live births in 2008, which was above the Standard National QAP Indicator of 100 per 10,000 live births. SNNJ can be prevented by early detection and proper management of neonatal jaundice.

SNNJ is classified with an average bilirubin >340 micromole (>20mg/dl) and was selected as one indicator in the Quality Assurance Program whereby it is used to measure the quality of examination and management of newborns.

Rationale for selection of the indicator is that, it is a better indicator than the incidence rate of Kernicterus because the criterion for diagnosis is fixed and it is a condition which may lead to Kernicterus. If detected early and manage adequately, SNNJ is preventable, since it is a contributing factor towards neonatal morbidity and mortality. Moreover, this indicator may be regarded as a reflection of the overall quality of care given to neonates by nurses.

## OBJECTIVE

To increase the knowledge and practice on early detection of neonatal jaundice by nurses in Kuching District.

## METHODS

### DURATION STUDY

Duration of study was for six months period (July 2009 until January 2010). The pre intervention study was done from 1<sup>st</sup> July 2009 until 31 July 2009 where as the intervention period was from 1<sup>st</sup> August until 31<sup>st</sup> December 2009 (5 months). The post intervention assessment was carried out from 1<sup>st</sup> January 2010 until 31<sup>st</sup> January 2010.

### STUDY DESIGN

This is an interventional study.

### SAMPLING METHOD AND SAMPLE SIZE

It was a purposive sampling comprising of 113 nurses of all category ( 14 staff nurse and 99 Community Nurse) working in selected Maternity and Child Health clinic caring for all reported babies with Severe Neonatal Jaundice cases reported from Sarawak General Hospital between the period of January 2009 until June 2009.

### DATA COLLECTION

Convenience and Universal Sampling.

Data was collected and analyzed using MS Excel program.

### DURATION

Study Period: July 2009 until January 2010

### INSTRUMENT

A self administered questionnaire format was the tool of the study. The instrument used was adapted and modified questionnaires from Quality Assurance Investigation Manual for Family Health Programme (1993), in English and Bahasa Malaysia version.

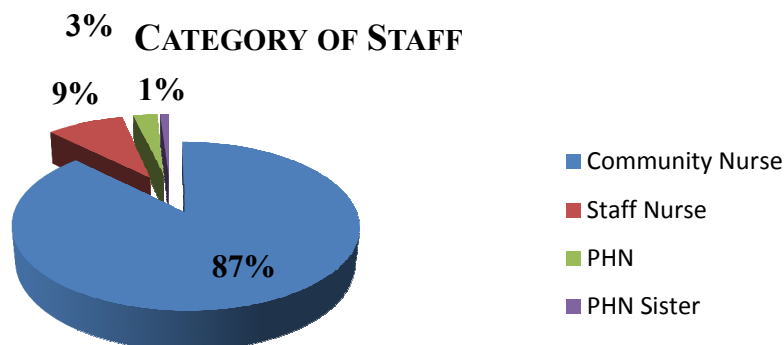
The demographic characteristic was in term of age, designation and length in service. There were seven questions on knowledge .To measure the adequacy of knowledge is based on passing mark of 50% and above. Inadequate knowledge is measured by mark of below 50%. There are two questions to assess the practice.

## RESULTS

Pre and Post Intervention Survey carried out among the 113 nurses in assessing their knowledge and practice shown in Figure 1.1 to Figure 3.2 below:-

### DESCRIPTIVE ANALYSIS

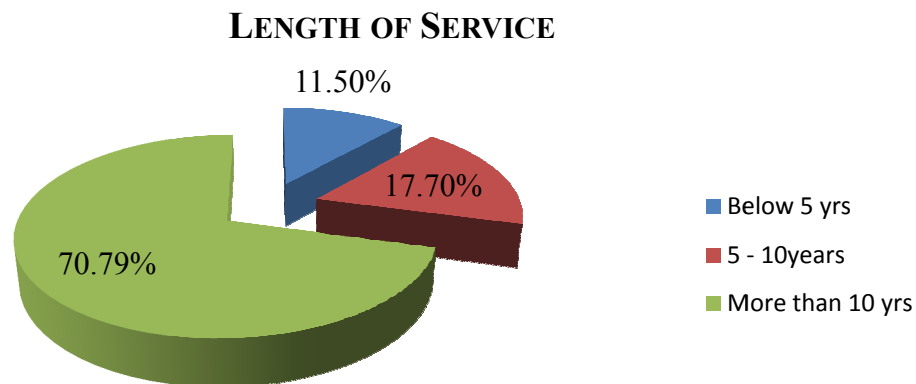
#### 1. DEMOGRAPHIC DATA



**Figure 1.1** Distribution of respondents by job category

Findings on demographic details (as shown in Figure 1.1) revealed that 87.6% (99) of the staff were Community Nurses and 8.8% (10) were Staff Nurses and 2.65% (3) were Public

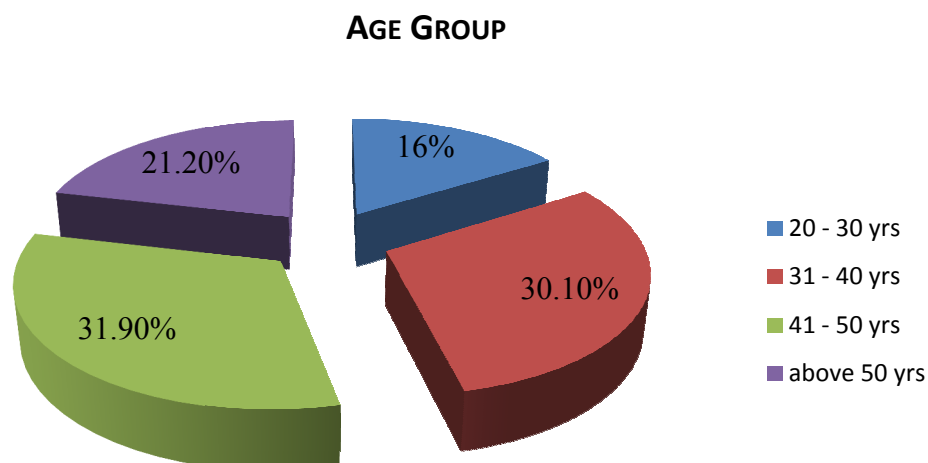
Health Nurses and 0.88% were the Public Health Nursing Sisters.



**Figure 1.2** Length of Service of respondents

70.79% (80) of the staff, had been working for more than 10 years, 17.7% (20) had been in service between 5 to 10 years. While only

11.5% (13) had been in service for less than 5 years.



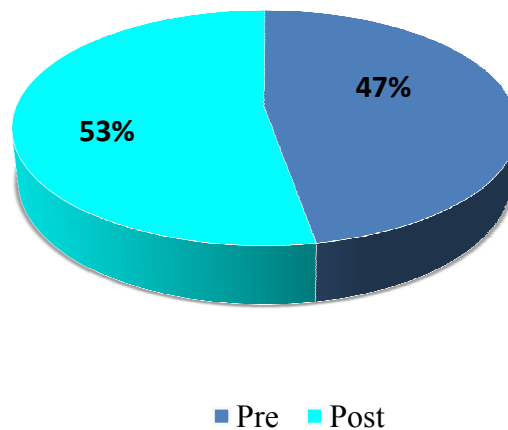
**Figure 1.3** Age Group of Respondents

In term of age break down, 21.23% (24) were above 50 years of age, 31.9% (36) were between ages of 41 – 50 years, 30.1% (34) between ages of 31 – 40 years, while 16% (19) of age between 20 – 30 years. This showed that majority

of the respondents were matured and of more responsibility.

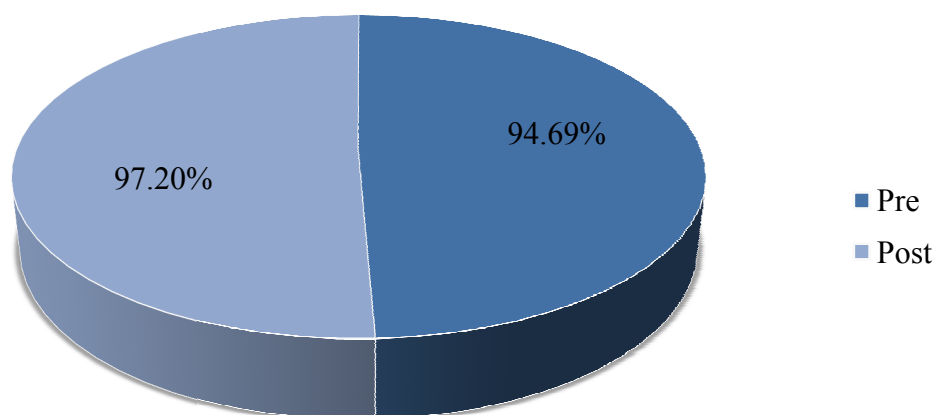
## 2. KNOWLEDGE

### IDENTIFICATION OF RISK FACTORS

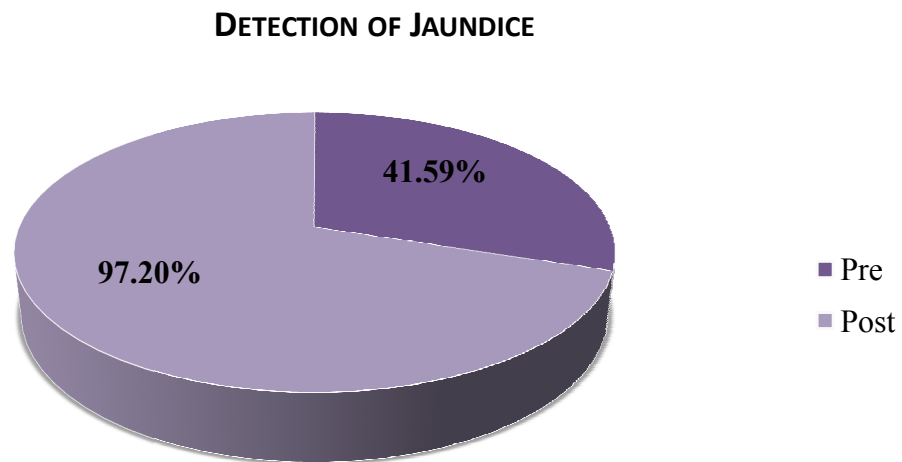


**Figure 2.1** Findings shows that there were an increased in staff knowledge in term of risks identification of Severe Neonatal Jaundice from (64) 56.6% to (67) 63.2%.

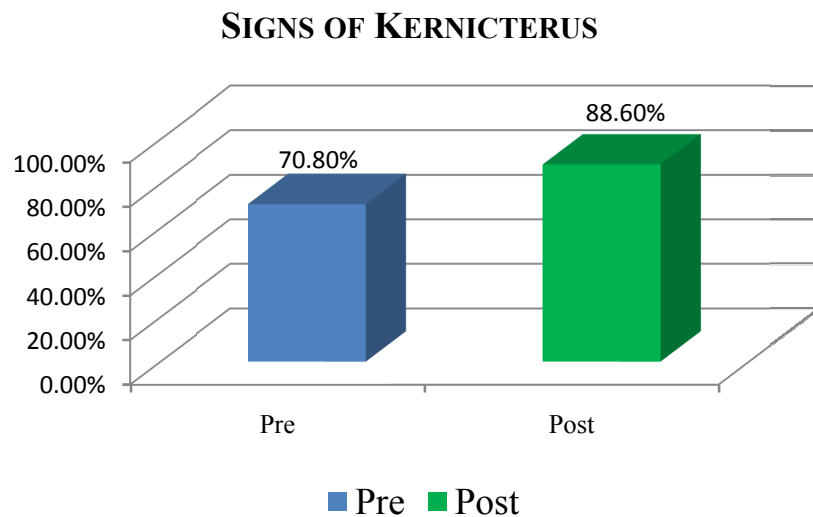
### DEFINITION OF JAUNDICE



**Figure 2.2** Findings on staff knowledge on definition of jaundice has improved from 94.6% (107) to 97.2% (103). *Total respondents post survey was short of 12 because they have been transferred out from the district.*

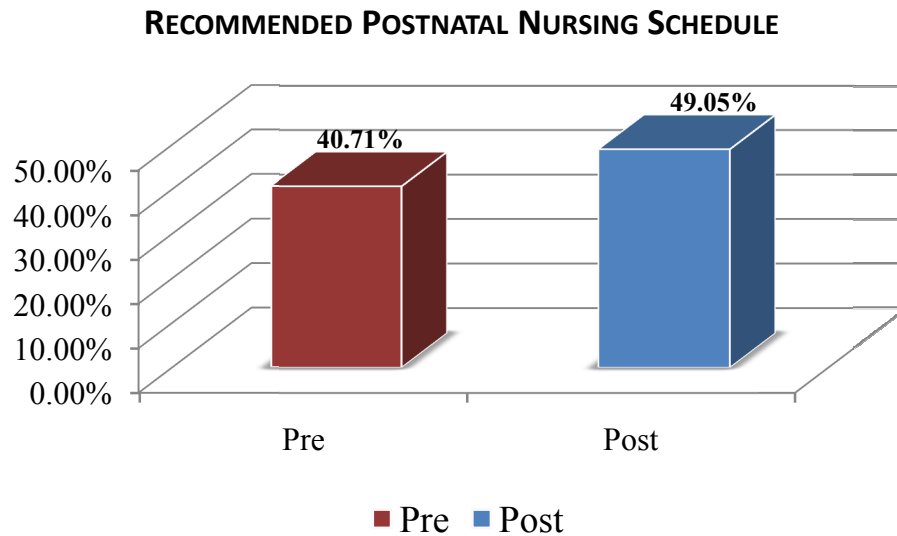


**Figure 2.3** Staff knowledge as to where to detect jaundice also improved from 41.5% to 97.2% (103).

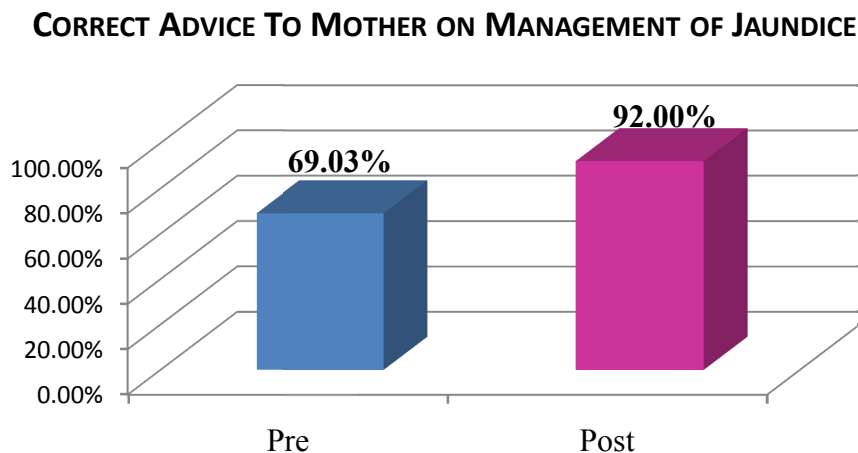


**Figure 2.4** Findings on staff knowledge on signs of Kernicterus has improved from 70.8% (80) to 88.6% (94).

### 3. PRACTICE



**Figure 3.1** Results on staff practice has improved from 40.7% (46) to 49.0% (38) on the recommended postnatal nursing schedule.



**Figure 3.2** Findings on staff practice on advice to mothers on correct management of jaundice has improved from 69.0% (78) to 92.0% (97).

### DISCUSSION

From the findings of our pre survey, it was noted that there were few shortfall in quality as to the high incidence rate of SNNJ in the district. In order

to reduce the incidence, interventions have to be undertaken to overcome the shortfall. The following interventions were carried out:

NO.	ACTIVITY	TOTAL	DATE OF IMPLEMENTATION	TOTAL OF ATTENDANCE	REMARKS
1.	ECHO Training	1	February 2010	38	To inform all supervisors about our project.
2.	Workshop on Formulation on New Nursing Sheet PKB Kuching	1	February 2010	38	To formulate new format to capture all data's needed in the survey which was not available in the present Nursing Sheet.
3.	CNE on Implementation Nursing Sheet PKB Kuching	2	11 February 2010 25 march 2010	97	To disseminate information's on usage of new nursing sheet, importance of home nursing and danger of SNNJ
4.	Importance of Home Nursing & Detection of Jaundice during Nursing	2	11 February 2010 25 march 2010	97	
5.	E – Notification of birth from Sarawak General Hospital	Kuching Division	Since April 2010 and still on going		To ensure fast notification of birth from Sarawak General Hospital to all clinics, so that nursing can be carried out within 24 hours upon discharge.
7.	Pamphlets on Information of Neonatal Jaundice	3000	April 2010		Pamphlets was designed, printed and distributed to all mothers with Blood Group O, those with previous siblings admitted with SNNJ to create awareness so that they can take own initiative to come to nearest clinic for further management.
8.	Vehicle Perodua VIVA Nursing Average Kuching Division: ↑	4			KKIA Jawa, KKIA Gita, Lundu, Bau
9.	Supervisory visit by KJK U32/36 to all rural clinics.	10 clinic	As schedule		To ensure all supervisors especially the Nursing Sister/PHN do the supervisory visit and audits the post natal card and ensure all data's and nursing done accordingly to schedule.
10.	Nursing Audit – Close monitoring and random checking of postnatal cards.	All clinic	On going		

## CONCLUSION

The study shows that the interventions taken helped to improve the knowledge and practices of recommended measures to detect neonatal jaundice early. Though Egger et. al. (1994) cited that we cannot assured that a knowledgeable person will guarantee changes in behaviour, however through our study, it is noted that adequate transferred of

knowledge into action help in early detection and proper management of jaundice.

However, as supported by Meredith & Beth (2002), other risk factors which are beyond nurses control such as foetal maternal blood incompatibility, G6PD deficiency, prematurity, history of previous affected siblings, bruising and trauma from instrumental delivery may increase the risk of serum bilirubin elevation.

As stated by Zewelch, J.A & Caborn, J.C (1994) to improve quality in nursing care, it must focus on measuring and improving through close monitoring patient care services. Thus, by implementing the new reporting procedure and new nursing sheets, in addition with continuous nursing audit has greatly reduced the incidence rate of SNNJ.

With the increased knowledge and practice in detecting and managing neonatal jaundice among the newborn, the incidence rate of Severe Neonatal Jaundice was reduced to (79 cases) 89 per 100,000 live birth in 2010 when compared to (135 cases) 145.5/100,000 live birth in 2009. The reduction of incidence rate showed that there is no shortfall in quality.

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